110

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HAAS CNC vertical machine #1

Memo
MACHINE AS PER FOILIO FA447
FOLIO REV: A T
DWG REV: A

DEBURR AS PER DWG

0.00

0.00

10 (x & x)

Training Supplier Design Handling/Pre Equip/Tooling Doc/Data QA Closed: Unapproved Transport Process Offset/Setup Operator Material Work Order: Cause Root NCR NO. 13-2837 Part No. Landing Gear Cuffs Bending Marks/Chatter Heat Treat Crushing Crimp/Kink/Ripple/Wave Cracks Centre Not Concentric Wave/Twist in Tube Turning Sequence Inspection Strip in Tube March . 1-49RE (1) 七七名から Step Date: 13-7-12 5 x8 Top odypes of 2.525 rad
slightly bent from
tightening of the vise RC Toolig Som LACK I Bethe tooking holding Description of work order update finish Drawing BOM/Route Drill Holes Cut Too Short Contamination Broken/Damage/Defect Fit/Function Countersink or non-conformance Suspected Unapproved General DISPOSITION Use-as-is**|⊁** Rework Scrap Mis will not thenent 21,000 The Canistre Frank 13-0706 JAYSANG BHY OTHO BOXFO.CL FAULT CATEGORY Chief Eng Folio/Program Hardware Out of Sequence Out of Calibration Misread Mislabeled Off-set Misaligned/off center Instructions Incomplete/Unclear Inspection Incomplete/Unqualified Thermoforming Machining Large Fab SITTUM PROPERTY Skid-tube Description Action Composite Crosstube Small Fab Finishing AGAINST DEPARTMENT/PROCESS Work Order update only Outside Dimensions Power Loss/Surge Positioned Wrong Part Moved Part Lost/Missing Part Incorrect Over/Under tolerance Sign & Rec/Store/Packaging Prod. Eng. Coor. 173/07/06 Verification Water Jet Supplier Set-up Other Wrong Stock Pulled Pressure/Forced Temperature/Cure Engineering 3/2/8 QC Inspector Quality Other

DQA:

Date: 13/08/06

102844

Page 2

																														_
		<u> </u>	1	<u> </u>	<u> </u>	1	<u> </u>		1	Γ-	Landing Gear		Unapproved	Transport	Training	Supplier	Process	Offset/Setup	Operator	Material Material	Equip/Tooling \		Design	Cause		NCR No.	Part No.		Work Order:	QA Closed: ()
Wave/Twist in Tube	Turning Sequence	Marks/Chatte	Inspection Strip in Tube	Heat Treat	Crushing	Cuffs	Crimp/Kink/Ripple/Wave	Cracks	Centre Not Concentric	Bending	Gear							l	[30.50]]	Date		13-3636). <u>1) 2264-</u> 1		102844	
t in Tube	quence	tter	Strip in T				//Ripple/\		Concent						•	<u>z</u>	B	71	3 8	, a				Step		10.8X	1-40		44	Date: 1
			µbе				Nave		īċ.							<u></u>	□			- 	 	 F		Qty	,					
Fit/Function	Finish	Drill Holes	Drawing	Cut Too Short					1			_	Down / tooling	ACCEPT TO SERVE SOLINIA	2 (-)	10 0.125"	rowing the metables of 160"	15 NOT COUNSTENT AND	SHAWN DW ATTACHED DWG	THE 0.125" THICKNESS AS	TO LIKE ST. NOTICE ST.	つなるのとなり	PART HELD TOO TIGHT	or non-conformance		Suspected Unapproved	- Scrap	Rework	DISPOSITION	9
Out of S	Out of C	Off-set	Misread	Mislabeled	Misalig	Instructi	Inspecti	Hardware	Grain	Folio/Program		FAULT CATEGORY						1	90'tio 51	9 22 8 22	QAS			Chief Eng			Thorn		•	
Out of Sequence	Out of Calibration			led	Misaligned/off center	Instructions Incomplete/Unclear	Inspection Incomplete/Unqualified	re		rogram		TEGORY			IF THEY THE	PADO DE ACCEPTAGE	200	一のなったが	JIME 45 12 STUC	Calculation Shavi THAT	0 0 2 - 041 2- too-1,	37 10 7 1:	PER ATACHO SHEET 5	Action Description	A 2+	Large Fab	Machining X	Skid-tube		
					1	nclear	qualified			Ι				9 0 040 T.	THE THICK IN COURT	ACCEPTAGE	. (MOSCATOR)	PRATIES THE CAN	12 24100	SHOWS THAT	1- tac1,		5 1331K			Composite	Small Fab	Crosstube	AGAINST DEPARTMENT/PROCESS	W
				Power Loss/Surge	Positioned Wrong	Part Moved	Part Lost/Missing	Part Incorrect	Over/Under tolerance	Outside Dimensions										·	12-07-08	, S,	A OS	Date	Cino o	1,50,000	Par/Sto	1	PARTMENT	Work Order update only
				'Surge	Vrong]		issing	₽ 	tolerance	ensions								30110161	77			5		Verification		Supplier	Prod. Eng. Coor.	Water Jet	/PROCESS	pdate only
				Other	J	JWrong Stock Pulled	Weld	Temperature/Cure	Set-up	Pressure/Forced							3/18/18	<u>/</u> /	•	6	- C	>		QC Inspector			Other	Engineering		

Date: 15/07/23

1

Packaging

Packaging

Memo

0.00

QA Closed:	Date:	DISPOSITION	AGAINST	Work Order update only AGAINST DEPARTMENT/PROCESS	
Part No.		Rework			Engineering Quality
NCR No.		Use-as-is Suspected Unapproved		Rec/	Other
Root	-	Description of work order update			
Cause	Date Step Qty	or non-conformance	Chief Eng Description	Date Verification	n QC Inspector
Design Dar/Data					
Equip/Tooling					
Handling/Pre					
Material					
Operator					
Offset/Setup					
Supplier					
Training					
Transport					
Unapproved					
			FAULT CATEGORY		<u> </u>
Landing Gear	Sear 1	General]	
	Bending	Bend	Folio/Program	Outside Dimensions	Pressure/Forced
	Centre Not Concentric	BOM/Route	Grain	Over/Under tolerance	Set-up
	Cracks	Broken/Damage/Defect	Hardware .	Part incorrect	Temperature/Cure
	Crimp/Kink/Ripple/Wave	Burrs	Inspection Incomplete/Unqualified	Part Lost/Missing	Weld
 	Cuffs	Contamination	Instructions Incomplete/Unclear	Part Moved	Wrong Stock Pulled
<u> </u>	Crushing	Countersink	Misaligned/off center	Positioned Wrong	
	Heat Treat	Cut Too Short	Mislabeled	Power Loss/Surge	Other
Ι	Inspection Strip in Tube	Drawing	Misread	-	
	Marks/Chatter	Drill Holes	Off-set		
<u> </u>	Turning Sequence	Finish	Out of Calibration		
	Wave/Twist in Tube	Fit/Function	Out of Sequence		

Date:

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Page 4

Sequence ID/ Work Center ID °₹1&0* Quality Control Reference: Required Date: 6/11/13 Start Date: Item Name: Revision ID: Item ID: June-12-13 9:15:15 AM Approvals: 6/11/13 D3264-1 Bracket Process Plan: Description Operation QC21- Final Inspection - Work Order Release Start Qty: 8.00 Req'd Qty: 8.00 Memo Date: Date: ж ж * * Accept Tooling: SPC (Y/N): 0.00 0.00 Set Up/ Run Hours *N900040100* Cust Item ID: Customer: Tool ID Date: Date: Tool# Plan Code Accept Qty Setup Start *NS1* Run Start *NR1* Reject Reject Insp. Qty Number Stamp *NR2* *Stop *NS2*

NB-07/0

QA Closed:	Date:	æ					Wo	Work Order update only	date only	
Work Order:			····· <u>-</u> -	DISPOSITION			AGAINST DEPARTMENT/PROCESS	ARTMENT/	PROCESS	
			<u>'</u>	Rework	Skid-tube		Crosstube	j	Water Jet	Engineering
			. I	Use-as-is	Thermoforming		Finishing	Rec/Stor	Rec/Store/Packaging	Other
NCR No.			l	Suspected Unapproved	Large Fab		Composite		Supplier	
Root)escri	Description of work order update	Initial	Action		Sign &	;	
Cause	Date Step	Ωτγ		or non-conformance C	Chief Eng	Description	on	Date	Verification	QC Inspector
Design										
Doc/Data		·-								
Equip/Tooling										
Handling/Pre										
Material	·									
Operator	.				· · · · · ·					
Offset/Setup	1	-								
Process	.									
Supplier										
Training										
Transport				•	· =					
Unapproved		 -	İ					ļ 		
				F.A	FAULT CATEGORY					•
Landing Gear	Gear	-]	General	J]		1	J
	Bending		_	Bend	Folio/Program	_		Outside Dimensions	ensions	Pressure/Forced
	Centre Not Concentric	entric	<u> </u>	BOM/Route	_Grain		<u> </u>	Over/Under tolerance	olerance	Set-up
	Cracks		Ĺ	Broken/Damage/Defect	Hardware			Part Incorrect	<u>.</u>	Temperature/Cure
	_Crimp/Kink/Ripple/Wave	ile/Wave		Burrs	Inspection Incomplete/Unqualified	mplete/Unqua		Part Lost/Missing	sing	Weld
	Cuffs		Ĺ	Contamination	Instructions Incomplete/Unclear	omplete/Uncl		Part Moved		Wrong Stock Pulled
	Crushing		Ĺ	Countersink	Misaligned/off center	fcenter		Positioned Wrong	rong	ı
	Heat Treat			Cut Too Short	Mislabeled			Power Loss/Surge	urge	Other
<u></u>	Inspection Strip in Tube	in Tube	<u> </u>	Drawing	Misread				1	
1	Marks/Chatter			Drill Holes	Off-set					
1	Turning Sequence	:e		Finish	Out of Calibration	on				
	Wave/Twist in Tube	i ho	 _	Fit/Function	Out of Sequence	ס				

Date:

·Picklist Print

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June-12-13 9:15:14 AM

Parent Item: Work Order ID: 102844 D3264-1

Parent Item Name: Bracket

IPP A04.09.02New issueKJ/JLM

Component Item ID/ Item Name Comments: Replacement Item ID Mfg/ Purch ₽ No | Item Bin

Primary Location

Location Last

Route Seq ID

Unit of Oty on Measure Hand

Qty per Kit Total

Qty.

Status

Issued Issued Date

Qty

3.2534

Purchased

6061-T6 Bar 1.25 X 4.50 M6061T6B1.250X04.500

MAT004 Location 02121 121380 112628 × 4 Loc Oty 1.4834 3.2534

Start Date: 6/11/13 Start Qty: 8.00

Required Date: 6/11/13

Required Qty: 8.00

TT 73 07-02

Loc Code

Page I

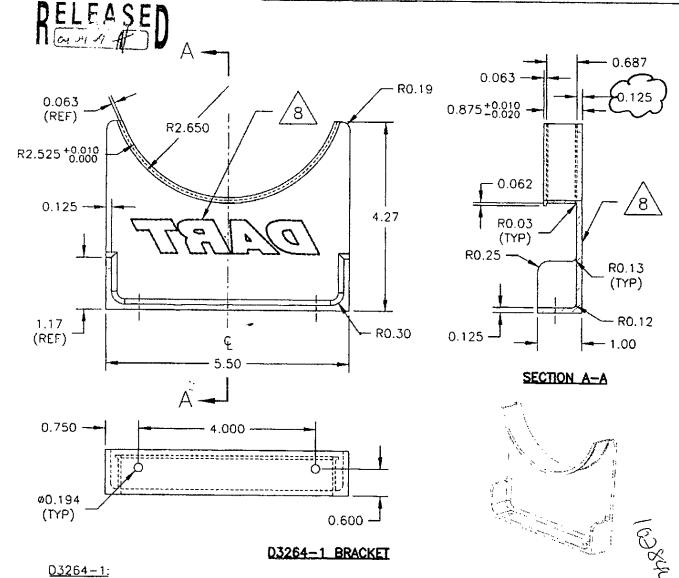
Inspection Strip in Tube Marks/Chatter	Inspection Strip in Tube	11607 11607	Hast Trest	Crushing	Cuffs	Crimp/Kink/Ripple/Wave	Cracks	Centre Not Concentric	Bending	Landing Gear		Unapproved	Transport	Training	Supplier	Process	Offset/Setup	Operator	Material	Handling/Pre	Equip/Tooling	Doc/Data	Cause Date Step Oty	Root Desc	NCR No.	Part No.		Work Order:	QA Closed: Date:	
Loriii noies	コンショニション	Drawing	Cut Too Short	Countersink	Contamination	Burrs	Broken/Damage/Defect	BOM/Route	Bend	General							•						or non-conformance	Description of work order update	Suspected Unapproved	Scrap	Rework ·	DISPOSITION		
Off-set		Misread	Mislabeled	Misaligned/off center	Instructions Incomplete/Unclear	Inspection Incomplete/Unqualified	Hardware	Grain	Folio/Program		FAULT CATEGORY												Chief Eng Description	Initial Action	8	Thermoforming Finishing		AGAINST		
			Power Loss/Surge	Positioned Wrong	Part Moved	Part Lost/Missing	Part incorrect	Over/Under tolerance	Outside Dimensions]													 Date Verification	Sign &	Supplier	Rec/Store/Packaging	Water Jet	AGAINST DEPARTMENT/PROCESS	Work Order update only	
			Other	J	Wrong Stock Pulled	Weld	Temperature/Cure	Set-up	Pressure/Forced	j			_										QC Inspector			Other	Engineering			A FI R C ひ て A C

Date:





DESIGN	DRAWN BY		SPACE LTD
CHECKED	APPROVED	DRAWING NO. D3264	REV. A SHEET 1 OF 1
DATE	<u>.</u>	TITLE	SCALE
04.04.20		BRACKET	1:2
A	04.04.20	NEW ISSUE	



- 1) MATERIAL: 6061-T6/T651 (QQ-A-200/8 OR QQ-A-225/8) (REF. DART SPEC. M6061T6B)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 3) TOLERANCES ARE PER DART OSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) BREAK ALL SHARP EDGES 0.005 TO 0.010
- 6) PART IS SYMMETRIC ABOUT CENTERLINE
- 7) IDENTIFY WITH DART P/N & B/N USING FINE POINT PERMANENT MARKER
- 8) ENGRAVE DART LOGO AS SHOWN USING 0.75 HIGH x 0.010 DEEP (MAX) LETTERS WITH (MIN) TOOL RADIUS OF 0.25

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QA Closed:		Date:				Work Order update only	
Work Order:				DISPOSITION	AGAINS	AGAINST DEPARTMENT/PROCESS	
Part No.				Rework			Engi
				Use-as-is	Thermoforming Finishing	Rec/Store/Packaging	Other
NCR No.				Suspected Unapproved	გ □		
				7		· ·	
Cause	Date	Sten	<u> </u>	or non-conformance	Chief Eng Description	Date Verification	n OC Inspector
		-				+	1
Design							
Doc/Data							
Equip/Tooling							
Handling/Pre			_				•
Material			_				
Operator							_
Offset/Setup							
Process							
Supplier							
Training							
Transport					-		
Unapproved	_						
		l			FAULT CATEGORY		:
Landing Gear	ear			General]]
	Bending			Bend	Folio/Program	Outside Dimensions	Pressure/Forced
	Centre Not Concentric	Concent	tric	BOM/Route	Grain	Over/Under tolerance	Set-up
	Cracks			Broken/Damage/Defect	Hardware	Part Incorrect	Temperature/Cure
	Crimp/Kink/Ripple/Wave	/Ripple/	Wave	Burrs	Inspection Incomplete/Unqualified	Part Lost/Missing	Weld
<u> </u>	Cuffs			Contamination	Instructions Incomplete/Unclear	Part Moved	Wrong Stock Pulled
	Crushing			Countersink	Misaligned/off center	Pasitioned Wrong	
	Heat Treat			Cut Too Short	Mislabeled	Power Loss/Surge	Other
	Inspection Strip in Tube	Strip in T	'ube	Drawing	Misread		
	Marks/Chatter	tter		Drill Holes	Off-set		
	Turning Sequence	quence		Finish	Out of Calibration		
	Wave/Twist in Tube	t in Tube		Fit/Function	Out of Sequence		
H:/FORMS/Quality Assurance\approved QA/NCRWO RevH	Assurance\app	proved QA,	/NCRWO	RevH			

DART AEROSPACE LTD	Work Order: 105844	,
Description: Bracket	Part Number: D3264-	1
Inspection Dwg: D3264 Rev: A	Page 1 c	of 1

FIRST ARTICLE INSPECTION CHECKLIST

Х	First Article	Prototype
		 ototypo

Drawing	Tolorene	Actual			Method of	
Dimension	Tolerance	Dimension	Accept	Reject	Inspection	Comments
0.687	+/-0.010	.690			سعب	27-4
0.063	+/-0.010	,061				
0.125	+/-0.010	.117		_		
0.875	+0.010/-0.020	,879				
0.062	+/-0.010	-061				
R0.03	+/-0.030	,030				
R0.13	+/-0.030	.130				
1.00	+/-0.030	1,004				<u></u>
0.125	+/-0.010	.124			·	
0.600	+/-0.010	500				
4.000	+/-0.005	3.998				
0.750	+/-0.010	.750				· · · · · · · · · · · · · · · · · · ·
Ø0.194	+0.005/-0.000	.750				
5.50	+/-0.030	5.500		_		
0.125	+/-0.010	.125				
0.063	+/-0.010	.063				
R0.25	+/-0.030	.220				
4.27	+/-0.030	4.269		_		
R0.30	+/-0.030	, პაი				<u> </u>

Measured by:	Audited by: D.e. DAS	Prototype Approval:	N/A
Date: 13 - 07 - 06	Date: 13/04/08 8-89	Date:	N/A

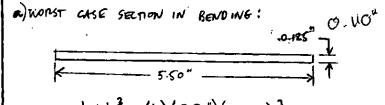
Rev	Date	Change	Revised by	Approved
_ A	04.09.03	New Issue	KJ/JLM	1
В	05.04.26	Ø0.194 was Ø0.208; dimensions removed	KJ/JLM	
С	07.10.10	Tolerance for 0.875 revised	KJ/EC/DD	1/2

CA CIUSEU.		00.00						A COLOR CARGO COLOR	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Work Order:				DISPOSITION			AGAINST DEPARTMENT/PROCESS	ARTMENT,	/PROCESS	
				Rework	 	Skid-tube	Crosstube		Water Jet	Engineering
Part No.		!		Scrap		Machining	Small Fab	Pro	Prod. Eng. Coor.	Quality
NCR No.	•			Use-as-is Suspected Unapproved	Thermo	Thermoforming Large Fab	Finishing Composite	Rec/Stor	Rec/Store/Packaging Supplier	Other
					_			,	3	
Root				Description of work order update	Initial	Ac	Action	Sign &		
Cause	Date	Step	Qty	or non-conformance	Chief Eng	Desc	Description	Date	Verification	QC Inspector
Design	!	į					•			
Doc/Data	<u> </u>			•			<u>خ</u>			
Equip/Tooling		·			j,	•	, ,		-	•
Handling/Pre	i			· · ·	٠. ۲٠٠,		>	ś		
Material	L			ŗ	4	·	•			
Operator					٠					
Offset/Setup	<u> </u>	-				•	-	_		
Process	I					•	/ / /			
Supplier	ı									
Training	1									
Transport	<u> </u>			,	•					
Unapproved	-					:				
	<u> </u>				FAULT CATEGORY	GORY				
Landing Gear	Gear			General]			4		
	Bending			Bend	Folio/Program)gram		Outside Dimensions	<u> </u>	Pressure/Forced
•	Centre Not Concentric	t Concent	lríc	BOM/Route	Grain			Over/Under tolerance	ı	Set-up
	Cracks			Broken/Damage/Defect	Hardware		<u> </u>	Part Incorrect		Temperature/Cure
<u> </u>	Crimp/Kink/Ripple/Wave	ık/Ripple/	Wave	Burrs	Inspection	Inspection Incomplete/U	'Unqualified	Part Lost/Missing	Γ	Weld
1	Cuffs			Contamination	Instructio	Instructions Incomplete/Unclear		Part Moved		Wrong Stock Pulled
	Crushing			Countersink	Misalign	Misaligned/off center		Positioned Wrong	/rong	
	Heat Treat	7		Cut Too Short	Mislabeled	<u>a</u>		Power Loss/Surge		Other
	Inspection Strip in Tube	ו Strip in T	ube	Drawing	Misread		1			1
<u> </u>	Marks/Chatter	atter		Drill Holes	Off-set				:	
<u> </u>	Turning Sequence	equence		Finish	Out of Calibration	ibration				:
	Wave/Twist in Tube	ist in Tube		Fit/Function	Out of Sequence	AJUGIT				

Date:

DESIG	" A	DRAWN BY	DART AEROSPA HAWKESBURY, ONTARIO,	
CHEC	(ED P	APPROVED	DRAWING NO. SN- D412-706-1	REV. A SHEET S OF S
04. 10. 2 7			TITLE STILES PLEPORT	SCALE MTS
Α	04	. 10.27	NEW ISSUE	

3.3 D3264-1 BRACKET ANALYSIS



$$F_{tu} = 38 \text{ Ksi (for QQ-A-200/8)}$$

$$MS = \frac{38}{24.4} = 1 = \frac{0.56}{0.00} = 0.00$$

$$MS = \frac{38}{24.4} = 1 = \frac{0.56}{0.00} = 0.00$$

6) LOCALIZED LOADING:

HIGHEST BOLT LOAD =
$$44^{\#}$$
 (SEE SECTION 3.2)

CONSIDER LOAD ACTS EVER A WIDTH OF $4D = 0.76^{\#}$

.. $T = \frac{1}{12}bh^3 = \frac{1}{12}(0.76^{\#})(0.125^{\#})^3 = 0.000124^{\#}$
 $C = 0.063^{\#}$
 $M = (44^{\#})(0.475^{\#}) = 21^{\#}$
 $M = (21)(0.063^{\#})/(0.000724^{\#}) = 10.7^{\#}$

Fig. = 38 Ksi (FOR $00-A-200/8$)

 $MS = \frac{38}{10.7} - 1 = \frac{2.6}{10.7} = 0K$

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